VIRAL OPHTHALMIC INFECTIONS

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Introduction

Complications of viral ophthalmic infections are the most common cause of blindness in developed countries (Verdier et al, 1984). In Malta, these account for 40.32% of all admissions diagnosed as ocular infections at the Ophthalmic Ward in Karen Grech Hospital. Viral ophthalmic infections occur in epidemics and in isolation (Wright, 1987). The appropriate use of antiviral agents, together with antibacterial agents and steroids has reduced the possible occurrence of epidemics and extensive ocular tissue damage.

Two studies were carried out in order to:

a) record the incidence of viral ophthalmic infections;
b) identify the aetiology of the infections and the source of the infecting organism;
c) study the current type of drug treatment available;
d) obtain the ophthalmologists view regarding these infections in the Maltese population.

Methodology

Study 1

A survey was carried out at the Ophthalmic Ward at Karen Grech Hospital. This survey included patients admitted for viral eye disease during January 1989 and September 1991 (33 months). Relevant information with regards to the infecting organism, source of infection, duration of the condition and treatment instituted was recorded. The results were subjected to Chi^2 test analysis where appropriate.

Study 2

A questionnaire was personally handed to the eight Ophthalmologists currently practising in the Maltese islands.

Results

Study 1

During the retrospective 33-month study, 25 patients were found to have been affected by a viral eye infection, out of 62 individuals suffering from

an eye infection i.e. an incidence of 40.32%. The mean age of the affected patients was 51.92 years, with 22 out of the 25 patients being over 30 years. Out of these, 36.36% (n=8) were female. Thus a ratio of 1:1.75 (female:male) was present. The mean duration of the condition was 34.05 days.

22 patients were Maltese, 2 Gozitans and 1 Polish; 63.64% (n=14) came from the South of Malta - industrial location being a significant risk factor for the development of viral eye infection ($p<0.95\%$).

The most common infecting organisms was Herpes Simplex Virus - Type 1 (HSV-1), closely followed by Adenovirus (Diagram 1). 17 patients suffered from an induced infection and out of these, 35% (n=6) came from an industrial location (Diagram 2).

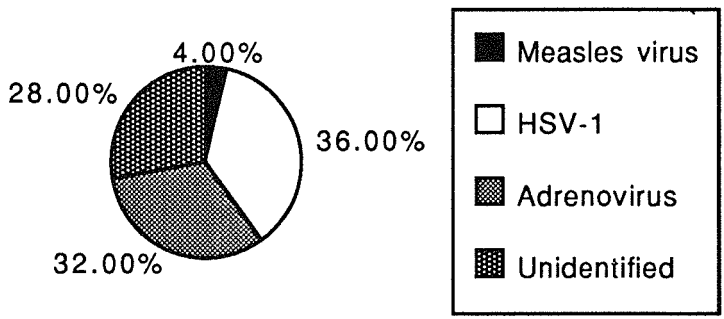

Diagram 1: Viral organisms producing eye infection in 25 patients in Study 1

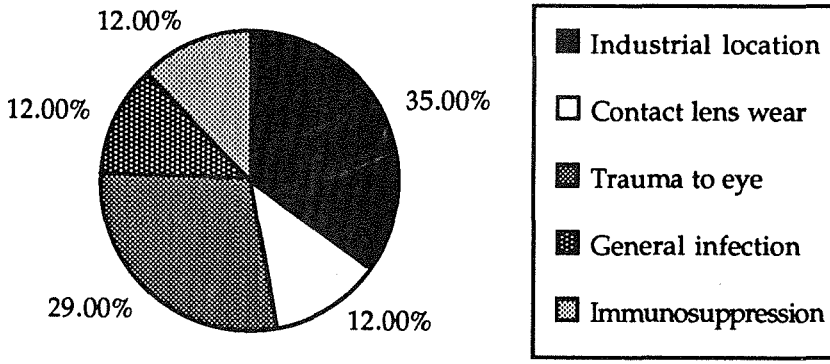

Diagram 2: Source of infection for 17 (out of 25) patients in Study 1

68% (n=17) patients were affected in the Winter season, environmental temperature changes being a significant risk factor ($p<0.95\%$). 72% (n=18) of patients were on antiviral, antibacterial and steroid therapy, 4% (n=1) were only on prophylactic antibiotics and 24% (n=3) were subjected to Keratoplasty. There was 1 corneal rejection within a few months of the procedure.

Study 2

0.744% of patients visiting an Ophthalmologist, are affected with a viral ocular disease. All of the Ophthalmologists interviewed agreed that Adenovirus and HSV-1 are the most common cause of infection, followed by Herpes Zoster Virus, Piconavirus and Retrovirus. Presenting complains include ocular inflammation, photophobia, decreased visual acuity and oedema. According to the Ophthalmologists, viral eye infections in Malta and abroad are most common in the age group betwen 12-45 years of age when interpersonal contact is mostly present - the greater number of infections being transmitted by fingers to eye (Wright, 1987).

Locally, diagnosis is made via Slit-Lamp microscopy and Fluorescein staining techniques. The Ophthalmologists, in most cases, prescribe antiviral and prophylactic antibacterial therapy; steroids may have to be used. Side-effects to the treatment are rarely seen. The most important complications of a viral eye infection are: decreased visual acuity, corneal ulceration and inner eye involvement. Conditions of dust, sunlight and crowded spaces have to be avoided.

Discussion

The incidence of viral eye infections in the Maltese population is comparable with that in America - 0.744% and <1.000% respectively (Verdier et al, 1984). Industrial location and cold weather have both been shown to be significant risk factors in the development of viral eye infections, with HSV-1 and Adenovirus being most commonly implicated. The rate of corneal rejection is very high - 1 out of 3 operations. The identification of high risk patients and the administration of cyclosporin post-operatively to these patients have been shown to significantly decrease the rejection rate in America (Hill, 1989). This process could be implemented in Malta to increase survival of corneal grafts. New diagnostic techniques may also be introduced to Malta to aid rapid diagnosis - thus the duration could be decreased to become comparable with that abroad i.e.: 17.6-28.4 days from 34.05 days (Liesegang, 1988). Therapy, which is aimed at lowering extensive ocular development, employs the use of antiviral, antibacterial and steroid agents.

Conclusion

In the case of patients suffering from a viral eye infection, the pharmacist is actively involved:

a) in the referral of patients presenting an undiagnosed red eye;

b) in the referral of patients, with a diagnosed viral eye infection, currently presenting an exacerbation of the condition or adverse effects to the treatment;

c. in ensuring patient compliance
   - to the dosage regimen
   - in attending follow-up visits to the Ophthalmologist;

d) in offering advice
   - regarding correct application of eye-ointment and instillation of eye-drops
   - as to the proper methods of handling and storing eye-medication
   - in terms of conditions to avoid during and, for some time, after the infection.

In view of the above, recommendations to the Community Pharmacist and to the patient have been set-up in the form of 2 leaflets. Eventually, these will be published and distributed to community pharmacists and patients who are currently using prescribed eye-medication.

References

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